WHAT IS CLAIMED IS:

1. A sheet feeding device comprising:

a cassette in which recording media are configured to be stacked, the cassette comprising a rear end regulation member configured to be moved in a direction in which the recording media are fed to regulate rear ends of the recording media and a size detection device configured to swing with movement of the rear end regulation member; and

a size determination device arranged within an area corresponding to a width of the cassette in the direction in which the recording media are fed and configured to determine a size of the recording media stacked in the cassette by detecting a position of the size detection device.

2. The sheet feeding device according to claim 1, wherein the size detection device is provided to a backside surface of the cassette.

3. The sheet feeding device according to claim 1,

wherein a swing fulcrum of the size detection device is located at one end of the cassette in the direction in which the recording media are fed, and the size detection device is configured to extend such that a swinging side end thereof is located at the other end of the cassette in the direction in which the recording media are fed, and

wherein the size determination device is arranged at a side of the other end of the cassette in the direction in which the recording media are fed.

4. The sheet feeding device according to claim 1,

wherein the cassette comprises a tray main body part, a tray expansion/contraction part supported by the tray main body part and configured to slide to a cassette expanded position where the cassette is in an expanded state and to a cassette contracted position where the cassette is in a contracted state and including a part forming a moving path of the rear end regulation member so that the rear end regulation member is configured to be moved to regulate rear ends of the recording media, and an auxiliary member that is configured to be attached, when the tray expansion/contraction part is in the cassette expanded position, to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member to extend a length of the moving path of the rear end regulation member of the tray expansion/contraction part between the tray expansion/contraction part and the tray main

body part and is configured to be detached from the part of the tray expansion/contraction part forming the moving path of the rear end regulation member when the tray expansion/contraction part is in the cassette contracted position, and

wherein the size detection device has a swing radius corresponding to the length of the moving path of the rear end regulation member of the tray expansion/contraction part extended by attaching the auxiliary member to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member.

5. The sheet feeding device according to claim 1, wherein a swing fulcrum of the size detection device is located substantially at a center of the cassette in a widthwise direction of the recording media, and the size detection device has a swing radius directed toward and extended to an end of the cassette opposite an end of the cassette in the direction in which the recording media are fed.

6. The sheet feeding device according to claim 1,

wherein the size detection device comprises a cam part at a swinging side end thereof, and the size determination device is configured to determine the position of the size detection device by being pushed by the cam part, and

wherein a tilt prevention member is provided between a wall part of the cassette and the cam part and configured to contact the cam part so that the cam part can be prevented from being tilted when the cam part pushes the size determination device.

7. The sheet feeding device according to claim 6, wherein the tilt prevention member comprises a curved surface corresponding to a swinging locus of the cam part.

8. The sheet feeding device according to claim 4,

wherein the part of the tray expansion/contraction part forming the moving path of the rear end regulation member comprises a rail configured to permit the rear end regulation member to slide after placement thereon, and

wherein the auxiliary member is configured such that the rail included in the part of the tray expansion/contraction part forming the moving path of the rear end regulation member is continued when the auxiliary member has been attached to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member.

9. The sheet feeding device according to claim 4, wherein the auxiliary member is configured, when the cassette is in the expanded state, to connect, at one side end thereof, with an end of the part of the tray expansion/contraction part forming the moving path of the rear end regulation member in the direction in which the recording media are fed and to contact the tray main body part at the other side end thereof.

10. The sheet feeding device according to claim 4, wherein the part of the tray expansion/contraction part forming the moving path of the rear end regulation member comprises a sliding guide part configured to support the rear end regulation member to slide, and an end part of the sliding guide part at the side of the tray main body part is configured to attach to a fall-off prevention member to prevent the rear end regulation member from falling off the sliding guide part when the auxiliary member is not attached to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member.

11. The sheet feeding device according to claim 10, wherein the end part of the sliding guide part of the part of the tray expansion/contraction part forming the moving path of the rear end regulation member is configured to engage with ends of the fall-off prevention member arranged across the sliding guide part.

12. The sheet feeding device according to claim 4, wherein the tray expansion/contraction part comprises a reinforcing member extended across the part of the tray expansion/contraction part forming the moving path of the rear end regulation member and integrated with the tray expansion/contraction part at both ends thereof in a direction in which the reinforcing member is extended so that the tray expansion/contraction part can be prevented from extending in a direction orthogonal to a direction in which the tray expansion/contraction part slides.

13. The sheet feeding device according to claim 4, wherein the tray main body part comprises holding parts configured to hold the tray expansion/contraction part at the cassette expanded position and the cassette contracted position and an indication part configured to differentiate a state in which the tray expansion/contraction part is held by the tray main body part from a state in which the tray expansion/contraction part is released from being held by the tray main body part.

14. The sheet feeding device according to claim 13, wherein the tray expansion/contraction part comprises engaging members, and the holding parts of the tray main body part comprise locking parts configured to engage with and disengage from the engaging members of the tray expansion/contraction part, and the indication part is configured to differentiate a state in which the tray expansion/contraction part is held by the tray main body part from a state in which the tray expansion/contraction part is released from being held by the tray main body part according to engaging states of the engaging members of the tray expansion/contraction part and the locking parts of the tray main body part.

15. An image forming apparatus, comprising:

an image forming device configured to form an image on a photoconductor; and

a sheet feeding device configured to convey recording media to receive the image from the photoconductor, the sheet feeding device comprising a cassette in which the recording media are configured to be stacked, the cassette comprising a rear end regulation member configured to be moved in a direction in which the recording media are fed to regulate rear ends of the recording media and a size detection device configured to swing with movement of the rear end regulation member, and a size determination device arranged within an area corresponding to a width of the cassette in the direction in which the recording media are fed and configured to determine a size of the recording media stacked in the cassette by detecting a position of the size detection device.

16. The image forming apparatus according to claim 15, wherein the size detection device is provided to a backside surface of the cassette.

17. The image forming apparatus according to claim 15,

wherein a swing fulcrum of the size detection device is located at one end of the cassette in the direction in which the recording media are fed, and the size detection device is configured to extend such that a swinging side end thereof is located at the other end of the cassette in the direction in which the recording media are fed, and

wherein the size determination device is arranged at a side of the other end of the cassette in the direction in which the recording media are fed.

18. The image forming apparatus according to claim 15,

wherein the cassette comprises a tray main body part, a tray expansion/contraction part supported by the tray main body part and configured to slide to a cassette expanded position where the cassette is in an expanded state and a cassette contracted position where the cassette is in a contracted state and including a part forming a moving path of the rear end regulation member so that the rear end regulation member is configured to be moved to regulate rear ends of the recording media, and an auxiliary member that is configured to be attached, when the tray expansion/contraction part is in the cassette expanded position, to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member to extend a length of the moving path of the rear end regulation member of the tray expansion/contraction part between the tray expansion/contraction part and the tray main body part and is configured to be detached from the part of the tray expansion/contraction part forming the moving path of the rear end regulation member when the tray expansion/contraction part is in the cassette contracted position, and

wherein the size detection device has a swing radius corresponding to the length of the moving path of the rear end regulation member of the tray expansion/contraction part extended by attaching the auxiliary member to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member.

19. The image forming apparatus according to claim 15, wherein a swing fulcrum of the size detection device is located substantially at a center of the cassette in a widthwise direction of the recording media, and the size detection device has a swing radius directed toward and extended to an end of the cassette opposite an end of the cassette in the direction in which the recording media are fed.

20. The image forming apparatus according to claim 15,

wherein the size detection device comprises a cam part at a swinging side end thereof, and the size determination device is configured to determine the position of the size detection device by being pushed by the cam part, and

wherein a tilt prevention member is provided between a wall part of the cassette and the cam part of the size detection device and configured to contact the cam part so that the cam part can be prevented from being tilted when the cam part pushes the size determination device.

21. The image forming apparatus according to claim 20, wherein the tilt prevention member comprises a curved surface corresponding to a swinging locus of the cam part.

22. The image forming apparatus according to claim 18,

wherein the part of the tray expansion/contraction part forming the moving path of the rear end regulation member comprises a rail configured to permit the rear end regulation member to slide after being placed thereon, and

wherein the auxiliary member is configured such that the rail included in the part of the tray expansion/contraction part forming the moving path of the rear end regulation member is continued when the auxiliary member has been attached to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member.

23. The image forming apparatus according to claim 18, wherein the auxiliary member is configured, when the cassette is in the expanded state, to connect, at one side end thereof, with an end of the part of the tray expansion/contraction part forming the moving path of the rear end regulation member in the direction in which the recording media are fed and to contact the tray main body part at the other side end thereof.

24. The image forming apparatus according to claim 18, wherein the part of the tray expansion/contraction part forming the moving path of the rear end regulation member comprises a sliding guide part configured to support the rear end regulation member to slide, and an end part of the sliding guide part at the side of the tray main body part is configured to attach to a fall-off prevention member to prevent the rear end regulation member from falling off the sliding guide part when the auxiliary member is not attached to the part of the tray expansion/contraction part forming the moving path of the rear end regulation member.

25. The image forming apparatus according to claim 24, wherein the end part of the sliding guide part of the part of the tray expansion/contraction part forming the moving path of the rear end regulation member is configured to engage with ends of the fall-off prevention member arranged across the sliding guide part.

26. The image forming apparatus according to claim 18, wherein the tray expansion/contraction part comprises a reinforcing member extended across the part of the tray expansion/contraction part forming the moving path of the rear end regulation member

and integrated with the tray expansion/contraction part at both ends thereof in a direction in which the reinforcing member is extended so that the tray expansion/contraction part can be prevented from extending in a direction orthogonal to a direction in which the tray expansion/contraction part slides.

27. The image forming apparatus according to claim 18, wherein the tray main body part comprises holding parts configured to hold the tray expansion/contraction part at the cassette expanded position and the cassette contracted position and an indication part configured to differentiate a state in which the tray expansion/contraction part is held by the tray main body part from a state in which the tray expansion/contraction part is released from being held by the tray main body part.

28. The image forming apparatus according to claim 27, wherein the tray expansion/contraction part comprises engaging members, and the holding parts of the tray main body part comprises locking parts configured to engage with and disengage from the engaging members of the tray expansion/contraction part, and the indication part is configured to differentiate a state in which the tray expansion/contraction part is held by the tray main body part from a state in which the tray expansion/contraction part is released from being held by the tray main body part according to engaging states of the engaging members of the tray expansion/contraction part and the locking parts of the tray main body part.

29. The image forming apparatus according to claim 15, further comprising:
a plurality of openings configured to receive a plurality of the cassettes.

30. A sheet feeding device comprising:

means for stacking recording media therein, the means for stacking including means for regulating rear ends of the recording media, movable in a direction in which the recording media are fed to regulate the rear ends of the recording media, and means for swinging with movement of the means for regulating; and

means for detecting a position of the means for swinging and for determining a size of the recording media stacked in the means for stacking, the means for detecting arranged within an area corresponding to a width of the means for stacking in the direction in which the recording media are fed.

31. An image forming apparatus, comprising:

means for forming an image on a photoconductor; and

a sheet feeding device configured to convey recording media to receive the image from the photoconductor, the sheet feeding device comprising means for stacking recording media therein, the means for stacking including means for regulating rear ends of the recording media, movable in a direction in which the recording media are fed to regulate the rear ends of the recording media, and means for swinging with movement of the means for regulating, and means for detecting a position of the means for swinging and for determining the size of the recording media, the means for detecting arranged within an area corresponding to a width of the means for stacking in the direction in which the recording media are fed.

32. A sheet feeding device comprising:

a cassette in which recording media are configured to be stacked, the cassette comprising a rear end regulation member configured to be moved in a direction in which the recording media are fed to regulate rear ends of the recording media and a size detection device configured to swing with movement of the rear end regulation member; and

means for determining a size of the recording media stacked in the cassette by detecting a position of the size detection device, the means arranged within an area corresponding to a width of the cassette in the direction in which the recording media are fed.

33. A method of feeding media, comprising:

providing a cassette in which recording media are configured to be stacked, the cassette comprising a rear end regulation member configured to be moved in a direction in which the recording media are fed to regulate rear ends of the recording media and a size detection device configured to swing with movement of the rear end regulation member; and

arranging a size determination device within an area corresponding to a width of the cassette in the direction in which the recording media are fed and configured to determine a size of the recording media stacked in the cassette by detecting a position of the size detection device.